

Claims

- 1 1. A method for determining an estimated value of a mass flow in the intake channel of an internal combustion engine, comprising the steps of:
  - 3 - determining a measured value of an induction manifold pressure as the command variable of a control loop,
  - 5 - determining an estimated value of the induction manifold pressure as a regulating variable of the control loop,
  - 7 - determining the estimated value depending on a manipulated variable of the control loop,
  - 9 - calculating the manipulated variable depending on the difference between the estimated value and a measured value of the induction manifold pressure and depending on the time-related change of the measured value of the induction manifold pressure, and
  - 13 - calculating the estimated value of the mass flow in the intake channel depending on the manipulated variable.
- 1 2. The method as claimed in Claim 1, wherein the manipulated variable is calculated by multiplying the difference between the estimated value and the measured value of the induction manifold pressure by a correction factor, which factor is determined depending on the time-related change in the measured value of the induction manifold pressure.
- 1 3. The method as claimed in Claim 2, wherein the correction factor is determined from a characteristic curve.
- 1 4. The method as claimed in Claim 1, wherein the manipulated variable is corrected depending on a measured value of the air mass flow.

- 1    5. The method as claimed in Claim 1, wherein the manipulated variable is
- 2    determined depending on the integral of the difference between the estimated value
- 3    and the measured value of the induction manifold pressure.

1 6. A device for determining an estimated value of a mass flow in the intake  
2 channel of an internal combustion engine, comprising:  
3 - a sensor for measuring the value of an induction manifold pressure which is used as  
4 the command variable of a control loop, wherein the control loop comprises:  
5 - an estimation unit for estimating the value of the induction manifold pressure  
6 which is used as a regulating variable of the control loop, wherein the  
7 estimation unit receives a manipulated variable of the control loop,  
8 - a calculating unit for calculating the manipulated variable depending on the  
9 difference between the estimated value and a measured value of the induction  
10 manifold pressure and depending on the time-related change of the measured  
11 value of the induction manifold pressure, and  
12 - a calculating unit for calculating the estimated value of the mass flow in the  
13 intake channel depending on the manipulated variable.

1 7. The device as claimed in Claim 6, wherein the calculating unit for calculating  
2 the manipulated variable comprises a multiplier for multiplying the difference between  
3 the estimated value and the measured value of the induction manifold pressure by a  
4 correction factor, which factor is determined depending on the time-related change in  
5 the measured value of the induction manifold pressure.

1 8. The device as claimed in Claim 7, wherein the correction factor is determined  
2 from a characteristic curve.

1 9. The device as claimed in Claim 6, further comprising a air mass flow sensor for  
2 providing a variable for correcting the manipulated variable.

1 10. The device as claimed in Claim 6, wherein the calculating unit for calculating  
2 the manipulated variable comprises an integrator for determining the integral of the  
3 difference between the estimated value and the measured value of the induction  
4 manifold pressure.